

Listing of Claims

1. (Currently Amended) A method for recognizing mobile signals in a wireless code division multiple access system, comprising:

measuring a moving speed of a transmitting end;

measuring a signal-to-noise ratio of a signal from the transmitting end; and

controlling a signal searching process of a receiving end coupled to a base station modem to recognize a signal from the transmitting end, said controlling including:

comparing the signal-to-noise ratio to a predetermined level, and

controlling an accumulation slot number to be set by a non-coherent accumulator

according to the measured moving speed ~~and the signal-to-noise ratio~~ and based on a result of the comparison.

2. (Currently Amended) The method of claim 1, wherein the transmitting end is user equipment ~~and the receiving end is a base station.~~

3. (Original) The method of claim 1, wherein a Doppler estimator measures the moving speed.

4. (Original) The method of claim 1, wherein a signal to interference ratio estimator measures the signal-to-noise ratio.

5. (Currently Amended) The method of claim 1, wherein ~~the~~ controlling the accumulation slot number step includes: giving a weight to the ~~the~~ [[a]] non-coherent accumulator when the moving speed is higher than a reference level.

6. (Currently Amended) The method of claim 1, wherein ~~the~~ controlling ~~step~~ the signal searching process further includes: giving a weight to a coherent accumulator when the moving speed is lower than a reference level.

7. (Currently Amended) The method of claim 1, wherein ~~the~~ controlling ~~step~~ the accumulation slot number includes: restricting a weight intended to be given to the ~~the~~ [[a]] non-coherent accumulator when the signal-to-noise ratio is lower than the predetermined ~~a reference~~ level.

8. (Currently Amended) A method for recognizing signals in a CDMA mobile communication system, comprising:

dispreading a ~~dispreading~~ received channel signal ~~signals~~, and accumulating different components of the despread signal ~~signals~~ according to coherent multi-slot accumulation, respectively;

squaring each component of the accumulated signals, and adding up the components ~~signals~~ to an energy value;

accumulating the energy value according to non-coherent multi-slot accumulation;

determining a moving speed of a ~~signal from the~~ transmitting end from which said received channel signal is ~~signals are~~ derived;

determining a signal-to-noise ratio of the signal from the transmitting end; and

controlling a signal searching process of a receiving end coupled to a base station modem to recognize the signal from the transmitting end, said controlling including controlling an accumulation slot number set by the non-coherent multi-slot accumulation according to the moving speed and the signal-to-noise ratio.

9. (Currently Amended) The method of claim 8, wherein the transmitting end is a user equipment, and the receiving end is a multi-path searcher of the ~~the~~ [[a]] base station modem.

10. (Currently Amended) The method of claim 8, wherein the components of the received channel signal ~~signals~~ are an in-phase (I) channel signal and a quadrature-phase (Q) channel signal.

11. (Currently Amended) The method of claim 8, wherein a Doppler estimator decides the moving speed of the ~~signal from the~~ transmitting end.

12. (Currently Amended) The method of claim 8, wherein determining the moving speed includes determining whether the moving speed of the ~~signal from the~~ transmitting end is a first speed or a second speed, wherein the first speed is greater than the second speed..

13. (Original) The method of claim 8, wherein a signal to interference ratio estimator determines the signal-to-noise ratio.

14. (Original) The method of claim 8, wherein the controlling step includes transmitting a control signal to the coherent and non-coherent accumulators according to the determined moving speed.

15. (Original) The method of claim 8, wherein the controlling step includes compensating for a control signal intended to be transmitted to the non-coherent accumulator according to the determined signal-to-noise ratio.

16. (Currently Amended) The method of claim 14, wherein, when the moving speed is determined to be higher than a reference level, a control signal for increasing the [[a]] slot number is transmitted to the non-coherent accumulator.

17. (Original) The method of claim 14, wherein, when the decided moving speed is determined to be lower than a reference level, a control signal for increasing a slot number is transmitted to the coherent accumulator.

18. (Original) The method of claim 15, wherein, when the signal-to-noise ratio is determined to be below a predetermined value, the control signal transmitted to the non-coherent accumulator is compensated.

19. (Currently Amended) The method of claim 15, wherein the control signal increases the [[a]] slot number based on the non-coherent multi-slot accumulation.

20. (Original) The method of claim 18, wherein the control signal is compensated by fixing the slot number based on the non-coherent multi-slot accumulation.

21. (Canceled)

22. (Currently Amended) An apparatus for recognizing mobile signals in a CDMA mobile communication system, comprising:

a despreader which despreads ~~a one or more received~~ signal into signal components signals;

a scrambling code generator which generates a scrambling code for use by the despreader;

a Doppler estimator which determines a speed of a mobile terminal which transmitted the received signal ~~signals transmitted by a mobile terminal~~, and which generates ~~transmits~~ control information based on the speed;

a signal-to-interference ratio estimator which determines a signal-to-noise ratio of the signal ~~signals~~ received from the mobile terminal, and corrects the control information generated by the Doppler estimator based on the signal-to-noise ratio;

a coherent accumulator which receives the despread signal components signals, and accumulates the signal components signals in slot units;

a squaring circuit which squares each of the signal components signals accumulated in the coherent accumulator;

an adder which adds size elements extracted by the squaring circuit;

a non-coherent accumulator which accumulates a signal size added by the adder
and controls an accumulation slot number based on the speed determined by the Doppler
estimator and the corrected control information from the signal-to-interference ratio estimator;

and

a memory which stores output signals from the non-coherent accumulator.

23. (Currently Amended) The apparatus of claim 22, wherein the ~~received signals~~
~~despread by the desreader~~ despreads the received signal into ~~include~~ an in-phase (I) channel
signal component and a quadrature-phase (Q) channel signal component.

24. (Currently Amended) The apparatus of claim 22, wherein the Doppler estimator
determines the speed of the ~~signals transmitted from the mobile terminal~~ by determining
whether the speed is a first speed or a second speed, wherein the first speed is greater than the
second speed.

25. (Currently Amended) The apparatus of claim 22, wherein the non-coherent
accumulator increases the ~~Doppler estimator transmits a control signal for increasing a slot~~
~~number to the coherent and non-coherent accumulators~~ according to the determined moving
speed.

26. (Currently Amended) The apparatus of claim 25, wherein, when the determined moving speed of the mobile terminal is determined to be higher than a reference level, the Doppler estimator transmits a first ~~the~~ control signal which is corrected by the signal-to-interference ratio estimator for increasing a first ~~[[the]]~~ slot number by ~~[[to]]~~ the non-coherent accumulator.

27. (Currently Amended) The apparatus of claim 25, wherein, when the moving speed of the terminal is determined to be lower than the reference level, the Doppler estimator transmits a second ~~the~~ control signal for increasing a second ~~the~~ slot number to the coherent accumulator.

28. (Original) The apparatus of claim 22, wherein the signal-to-interference ratio estimator compensates for a control signal transmitted to the non-coherent accumulator according to the determined signal-to-noise ratio.

29. (Original) The apparatus of claim 28, wherein, when the signal-to-noise ratio is determined to be below a predetermined value, the signal-to-interference ratio estimator compensates for the control signal for increasing the slot number transmitted to the non-coherent accumulator to a fixed slot number.

30. (Currently Amended) The apparatus of claim 22, wherein the coherent accumulator comprises:

a first coherent accumulator which receives an in-phase (I) channel signal component of the received signal; and

a second coherent accumulator which receives a quadrature-phase (Q) channel signal component of the received signal.

31. (Original) The apparatus of claim 22, wherein the squaring circuit comprises:
a first squaring circuit which receives a signal from the first coherent accumulator; and
a second squaring circuit which receives a signal from the second coherent accumulator.

32. (Original) The apparatus of claim 22, wherein the squaring circuit squares each of the signals and outputs energy values.

33. (Original) The apparatus of claim 22, wherein the adder adds energy values and outputs an energy value which is a signal size in a corresponding phase.

34. (Currently Amended) The apparatus of claim 22, wherein the coherent accumulator receives the despread ~~signal components~~ ~~signals~~, accumulates the ~~signal components~~ ~~signals~~ within a slot range by a corresponding pilot symbol value, and re-accumulates the ~~signal components~~ ~~signals~~ in slot units set by ~~a~~ the corresponding control signal from the Doppler estimator.

35. (Canceled)

36. (New) The method of claim 1, wherein the accumulation slot number is set by the non-coherent accumulator to achieve a desired mean acquisition time for recognizing the signal transmitted from the transmitting device.

37. (New) The method of claim 1, wherein the non-coherent accumulator increases the accumulation slot number when the signal-to-noise ratio is lower than the predetermined level.

38. (New) The method of claim 1, further comprising:
generating a control signal from a Doppler Estimator based on the moving speed of the transmitting device;

adjusting the control signal from the Doppler Estimator based on a result of the comparison of the signal-to-noise ratio to the predetermined level; and

controlling the accumulation slot number to be set by the non-coherent accumulator based on the adjusted control signal.

39. (New) The method of claim 38, wherein the control signal generated by the Doppler Estimator is indicative of a weight and wherein the adjusted control signal adjusts the weight based on a result of the comparison of the signal-to-noise ratio to the predetermined level.

40. (New) The method of claim 39, wherein the adjusted control signal adjusts the weight to achieve a desired mean acquisition time of the signal transmitted by the transmitting device.